

Golden Spread Electric Cooperative, Inc.

Attachment K Transmission Plan Development Scope

Revision History

Date of Revision	Author	Change Description	Comments
04/18/2017	GSEC Staff	Initial Draft	Reviewed by CWS on 5/03/2017
05/04/2017	GSEC Staff	Added language based on 05/03/2017 CWS feedback	

Table of Contents

Revision History	1
List of Figures	3
List of Tables	3
1. Introduction.....	4
2. Study Methodology.....	5
2.1 Study Scope	5
2.2 Study Process	5
2.3 Study Criteria.....	6
3. Results.....	7
3.1 Potential Overloads and Violations.....	7
4. TPP Milestones	9

List of Figures

Figure 1: GSEC Service Territory with Study Area 4

List of Tables

Table 1: Potential Violations 7
Table 2: Conclusion Table 7

1. Introduction

In accordance with Section 4.2 of Attachment K to Golden Spread’s Open Access Transmission Tariff (OATT), this Plan Development Scope sets out the scope, assumptions, methodologies and milestones for consideration as Golden Spread completes its Transmission Planning Process (TPP). The objective of this Plan Development Scope and the studies that will be prepared is to determine what impacts additional generation and new transmission projects will have on the Special Facilities Golden Spread owns on behalf of South Plains Electric Cooperative (SPEC), Big Country Electric Cooperative (BCEC), and Greenbelt Electric Cooperative (GEC) (collectively depicted in the map of all of Golden Spread’s members below) and which are covered under the Golden Spread OATT. It will be determined what, if any, actions need to be taken to ensure reliable power delivery over Special Facilities on behalf of third party customers and to the loads in these systems. Additionally, member cooperative buses will have the modeled, equivalent circuit modified to accurately represent load and power distribution throughout the member areas.

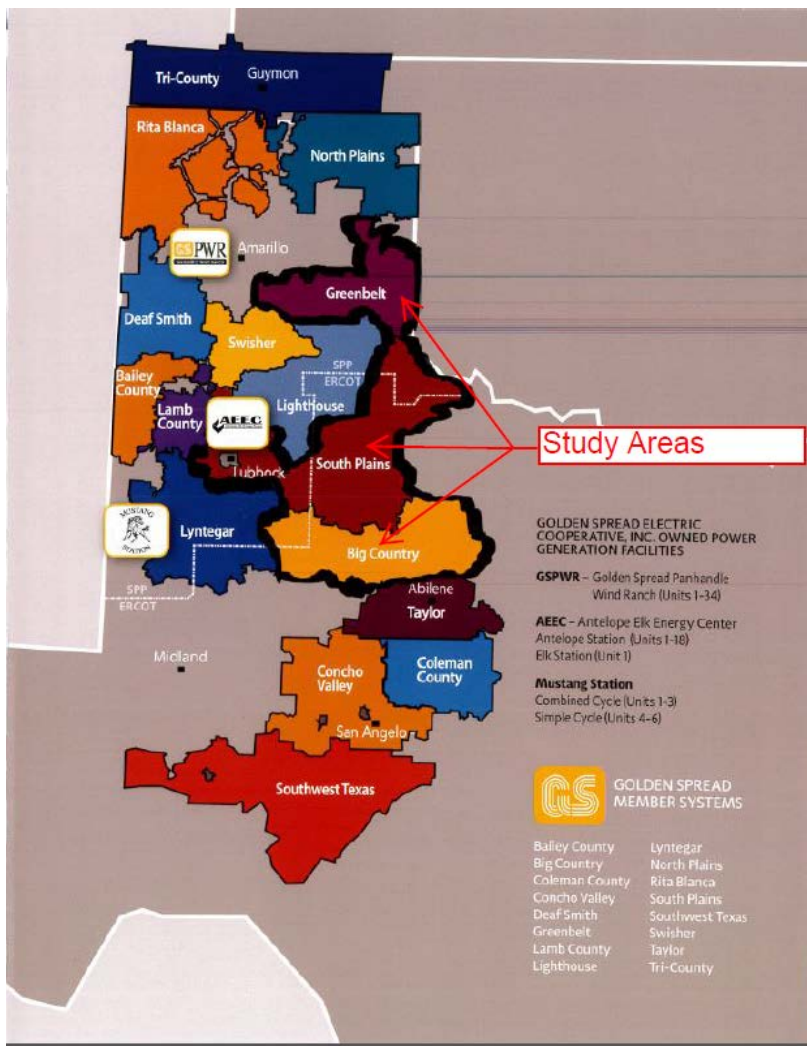


Figure 1: GSEC Service Territory with Study Area

2. Study Methodology

2.1 Study Scope

The SPEC, BCEC, and GEC Special Facilities included in this study are in the Texas Panhandle/South Plains areas, and are supplied power by Golden Spread through the Southwest Power Pool (SPP) power grid. There is one existing transmission customer on the SPEC Special Facilities that delivers power to the SPP power grid. There are currently no transmission or interconnection requests in the queue. The SPP 2017 ITPNT FINAL models will be used to determine the effects of additional loads, generation, and transmission expected over the next ten years. The SPP 2017 ITPNT FINAL load flow models are the provided by SPP as used in their reliability studies. An ACCC contingency analysis will be performed by using the software developed by PTI Version PSS®E 33. The results of the analysis will be shown in the format set out in Section 3.1 of this document.

Before the study can be started, all the 2017 ITPNT models will be modified to accurately represent the actual load distribution system of the member cooperatives rather than using an equivalent circuit.

2.2 Study Process

Model Assumptions:

- 2017 ITPNT models with all 2016 approved upgrade projects included
 - No violations are present prior to running contingencies in the 2016 base model at the member cooperative buses
 - Model years 2016, 2017, 2018, 2021, and 2026 are studied
 - Summer and Winter Peak Loads studied
 - Total of 28 models analyzed throughout study
 - Previous loads modeled for member cooperatives are accurate and equivalent prior to modifications

2.3 Study Criteria

The criteria used for this study is outlined below and is taken from the NERC Transmission Planning (TPL) Reliability Standards.

Category P0 –

System Performance Under Normal (No Contingency, or N-0) Conditions (Category P0) as referenced in Table 1 of NERC Standard TPL-001-4

- Voltage: 0.95 to 1.05 per unit
- Line Loading: 100 percent of continuous rating
- Transformer Loading: 100% of highest 65 °C rating

Category P1-P2 Events –

AC contingency analysis (N-1) System Performance Following Loss of a Single Element (Category P1-P2) as referenced in Table 1 of NERC Standard TPL-001-4

- Voltage: 0.95 to 1.05 per unit (PRPA)
- Line Loading: 100 percent of continuous rating or emergency rating if applicable
- Transformer Loading: 100% of highest 65 °C rating

The analysis will be conducted using PTI PSS®E 33 Category P0, P1, and P2; contingency analysis will be performed with and without the approved changes and the system performance was assessed per the NERC Reliability Standards TPL-001-4. Only new violations, which include overloads above 100 percent of the system element rating, voltages below 0.95 per unit under contingency, and voltages above 1.05 per unit under contingency observed only after the addition of generation, load or new transmission, will be reported.

3. Results

3.1 Potential Overloads and Violations

After the analysis is complete, those buses and transmission lines that were shown to have violations due to the forecasted construction will be shown. The table below gives the format for a detailed list of the violations and the scenario for which it occurs. Table X also outlines the steps taken to mitigate these violations, which were studied and modeled in PTI Version PSS®E 33 software. Reference screenshots of the analyzed buses included in this study will be prepared in an Appendix to the study.

Table 1: Potential Violations

Season	Scenario	Facility Name	Contingency Name	Rate A (MVA)	Rate B (MVA)	Flow	Current Loading (%)

Mitigation suggestions will also be addressed in the study. The mitigation suggestions are recommended based on the best engineering decisions to resolve any potential violation issues discovered and long-term reliability of the system. The suggested mitigations will also attempt to make the best economic decision for transmission planning purposes. Pursuant to Section 10 of Attachment K, nothing in the Plan is intended to supersede cost obligations as set forth in other parts of the OATT. The costs of new facilities required because of individual requests for transmission and generator interconnection service shall be allocated to customers pursuant to the OATT. The costs of new facilities that do not fit under the existing rate structures of the OATT shall be directly assigned to the requesting customer.

If, after an AC contingency analysis was completed, it was revealed that there is a strong potential for multiple bus/transmission line violations when approved SPP projects were added to the power system, Golden Spread will report steps to mitigate violations in an appendix to the study. Steps to mitigate these violations will be discussed and planned among GSEC and affected member cooperatives as soon as possible to prevent any future service disruptions. Table X in the format below will show the recommended upgrade list based off this study, and dates when these additions should be completed by (and include costs?).

Table 2: Conclusion Table

Project Needed	Date Needed	Estimated Cost

With respect to supporting data, assumptions and other materials used to prepare the study to determine Golden Spread's TPP, confidentiality and Critical Energy Infrastructure Information provisions are set out in Attachment K of the OATT.

4. TPP Milestones

Golden Spread intends to follow the following milestones with respect to its TPP, concluding in the Final Plan contemplated by Attachment K:

Activity	Date
Posting of Notice Soliciting Input	April 15, 2017
Comments Due on Notice Soliciting Input	May 15, 2017
Posting of this Plan Development Scope	May 23, 2017
Comments Due on Plan Development Scope	June 23, 2017
Studies Conducted	July 31, 2017
Stakeholder Meeting	July 31, 2017
Draft Plan Posted	August 4, 2017
Comments on Draft Plan	September 4, 2017
Revised Plan (if necessary)	September 6, 2017
Final Plan Posted	September 8, 2017